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THE CANOE AS FAILURE ON THE CANADIAN PLAINS

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Abstract. *Canadians mythologize the aesthetics and importance of canoe travel in their nation's development. However, on the Plains, the canoe proved a far from ideal transport mode. The navigation history of a typical small northern Plains river, the Qu'Appelle, illustrates the problems European canoeists faced on the Plains. Key problems included inadequate wood supplies, highly seasonal and variable river flows, meandering rivers, and the lack of feasible portages between major watersheds. Additional handicaps, dangerous in combination, were restricted visibility while canoeing and poor relations with Plains Indian nations. Retracing the forgotten Qu'Appelle river fur trading route confirmed historical evidence of the canoe's shortcomings. That the canoe was employed to the extent it was may reflect the slow adaptation of woodland fur traders to Plains travel.*

For many Canadians the canoe is the quintessential Canadian craft. In the Indian history of much of present-day Canada the canoe, and particularly the bark canoe, played a vital role in day-to-day life. Early European exploration, trade, and settlement of much of the country was inextricably linked to the canoe. To a large extent the Canadian border with the lower 48 U.S. states was defined by watershed boundaries and the reach of the canoe (the 49th parallel approximates the boundary between the Mississippi and Hudson Bay watersheds), a thesis strongly advanced by Innis (1956). During childhood Canadians are taught to look upon the canoe and the *voyageurs* who employed it as noble and romantic creations. Canoeist national mythology is supported by political leaders, as witnessed by former Prime Minister Pierre Trudeau's opinion of the spiritual gains from canoeing in the wilderness (Trudeau 1970). Government grants to the new Canadian Canoe Hall of Fame in Shawinigan, Quebec are evidence of practical government support.

For the humid regions of Canada, and for the boreal region in particular, much of this respect is reasonable. The canoe was a vital force in the

economic and political history of Canada. Even if you choose to view the canoe as "... the original instrument of centralist oppression," as Lee (1994) does, its importance seems undeniable. As far as the associated romanticism, the aesthetics of much of Indian and European fur trade history are undeniable, as are the aesthetics of the craft itself.

Yet on the Plains the canoe proved far from ideal as a transport mode. This paper examines the reasons for the failure of the canoe on the Canadian Plains by focusing on one particular river, the Qu'Appelle, to illustrate the general problems. The methodology is twofold. Firstly I examined archival records, manuscripts, and fur trader narratives for references to canoe traffic on the Qu'Appelle and elsewhere on the Canadian Plains to build a picture of the capabilities and limitations of Plains canoe travel. I then retraced the largely forgotten route from Fort Qu'Appelle, Saskatchewan to St. Lazare, Manitoba, which enabled me to experience firsthand some of the difficulties of Plains river travel. The paper concludes with a summary of the problems of canoe travel on northern Plains rivers, and makes some comparisons with a more flexible Plains travel option, the horse.

The Qu'Appelle Valley Test Site

I could find no Plains river whose flow has been left unaltered by European settlement. Water being a scarce resource on the Plains, Europeans have dammed and diverted supplies for human use. Equally, Europeans have wanted to limit the possibility of flood. The Qu'Appelle River, representative of many smaller Plains rivers, has been less altered than most.

The Qu'Appelle runs almost due east for some 400 kilometers across south-central Saskatchewan until it meets the Assiniboine River at St. Lazare, Manitoba (Fig. 1). The river is narrow (a typical width is 20 meters) and meanders extensively within a floodplain about 1.5 to 2.0 kilometers across. The meanders are one of the problems of canoe travel on the Qu'Appelle; typically you need to paddle 2.0 to 3.0 kilometers by river to advance one kilometer down the valley.

A second major difficulty is the strong seasonality of water flow to which Plains rivers are particularly prone. Further, strong variability in snowmelt and annual precipitation patterns makes streamflow unpredictable as well as seasonal. Large Plains rivers, such as the South Saskatchewan or the Missouri to the south, maintain a more dependable flow owing to large tributary watersheds which originate in the mountains. Nonetheless these rivers too are strongly seasonal in flow.

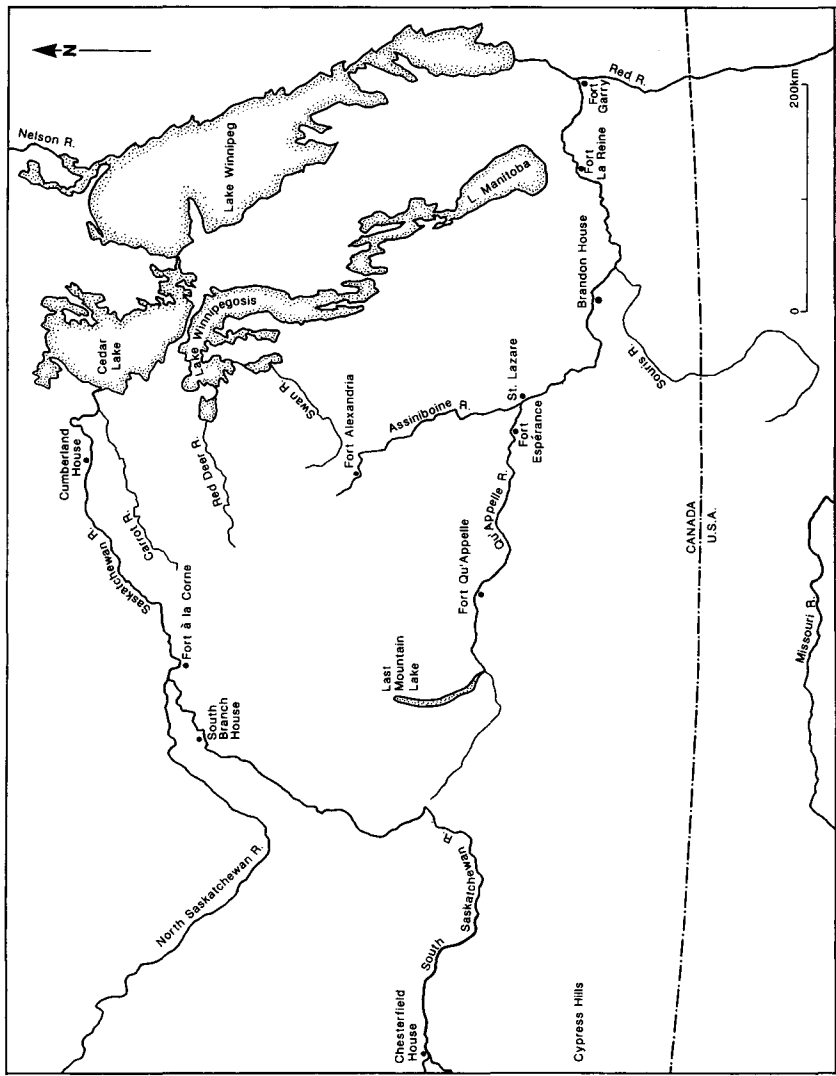


Figure 1. Northern Plains rivers and selected trading posts.

The head of the Qu'Appelle River is now the Qu'Appelle dam, which contains the spillover from Lake Diefenbaker, itself a product of the much larger Gardiner dam on the South Saskatchewan River. More significant for the flow of the section of the Qu'Appelle river under study are the weirs on several lakes in the valley. Echo, Katepwa, Crooked, and Round Lakes all have weirs at their outfalls, as does Last Mountain Lake, a tributary to the system. The weirs allow for some moderation of the high and low flow swings that are natural to the river. The stabilizing effect is only marginal, however, as government policy focuses on maintaining stable lake levels such that the river downstream of the weirs still bears the brunt of seasonal fluctuations. Thus, the weirs have little effect on major flood events. In the spring of the 1994 test season, for example, several sections of the valley floor were extensively flooded when the river overflowed its banks.

Another change to the river system has been an increase in the nutrient load owing to urban sewage disposal and agricultural fertilizer runoff, which has led to an increase in algal and weed growth, especially in the lakes in summer. But although this change in water quality is significant, it has had no important impact on the canoe navigability of the river.

In the key aspects of river morphology which might affect navigability (river depth, width, profile, flow rates, channelization or embankment works) the river section under study has changed relatively little from the time of the first hydrological measurements in 1858 (Hind 1860) to the detailed hydrological study of the Qu'Appelle River basin contained within the report of the Qu'Appelle Basin Study Board (1972). Hence the river is as suitable a candidate as can be found for investigating canoe traffic on the Canadian Plains.

Early River Travel in the Canadian Plains

The indigenous Indian craft used for river crossings and for journeys downstream on Plains rivers was the bull boat. Similar in basic design to the Celtic coracle, the bull boat was a simple, roughly circular, framed, tub-like craft that could be built in a few hours from bent willow branches and buffalo skins sewn with sinews. As the skins rotted quickly the boats were not very durable. Roberts and Shackelton (1983) and Adney and Chappelle (1964) describe the general bull boat, and Hunter (1824) details construction techniques.

Anthony Hendry (Burpee 1973:23) recorded the use of bull boats in his crossing of the South Saskatchewan River in 1754: "The Indian Men made

temporary Canoes of Willows, covered with parchment Moose skins." In his explorations in 1772 Matthew Cocking (Burpee 1908:103) also crossed the South Saskatchewan in ". . . temporary Canoes with bended sticks and covered with parchment skins." Even much later, in 1858, John Fleming (Hind 1860:442-43) related the scarcity of canoes proper and the use of bull boats on the northern Plains:

Bark canoes are not often seen so high upon the Saskatchewan [Fort à la Corne], there being a scarcity of birch-bark in the region through which the north and south forks flow. These great prairie-rivers are generally crossed and often descended in "bull-boats" or "parchment canoes" by the Indians, for great distances. These bull-boats are made of one or two buffalo skins, stretched on a light frame, stitched together, and the seams covered with tallow and ashes. Hunters and trappers frequently set out from Fort à la Corne, on horseback or on foot to the Moose Woods or the great prairies on the south Saskatchewan, and return in bull-boats laden with dried-meat and skins, both craft and cargo being the proceeds of their hunt. Bark canoes, although more durable than bull boats, are nevertheless very fragile and require to be handled with great care; the seams and cracks in the bark require constant "gumming" and attention. Our canoe being leaky, owing to injuries it had sustained in crossing the plains from Red River to the Elbow of the South Branch, was the source of much trouble until we reached Cumberland House [in wooded country], where, through the courtesy of the gentleman in charge, we were enabled to procure a new canoe. . . .

Fleming also noted that the one foot draught of his canoe on this journey was in places too deep, as the Saskatchewan had numerous mud shallows and sand bars in August.

The canoe technology imported onto the Plains by the Europeans was the birch bark design that they had adopted during their long contact with the woodland Indians to the East. The *canot du nord*, or north canoe, was the canoe typically employed by fur traders west of Grand Portage at the head of Lake Superior. North canoes (described in detail in Davidson 1967:216-18) were about 25 feet in length and four to four and one-half feet in beam. When fully loaded with a cargo of about 3,000 pounds the north canoe drew about 18 inches of water (Morse 1968:20). A working crew would number between five and seven men. Where practicable, on many rivers the Hudson's Bay Company (HBC) preferred flat-bottomed boats (York boats) to canoes.

Morse (1968:45) explains the general position of the Plains rivers in the fur trade (Fig. 1):

The North Saskatchewan formed roughly the [southern] boundary of the "strong woods" region where the furs were harvested. The Souris, Assiniboine, Qu'Appelle, Swan, Red Deer, and Carrot rivers all bore fur traders' canoes, but they were ancillary routes. The traffic on these rivers consisted more commonly of roughly-built boats, sometimes made for only a one-way trip, bearing tons of pemmican to the "refuelling" posts.

The largest true Plains river in Canada is the South Saskatchewan. Although the fur trade made extensive and successful use of the North Saskatchewan River, attempts to utilize the South Saskatchewan River were generally unsuccessful. The most important post on the latter river was Chesterfield House, established for the HBC by Peter Fidler in 1800. This post lasted four or five years—a long time compared with several other one or two year posts on the South branch variously operated by the HBC, the North West Company (NWC), or the XY Company. The only longer running post was the HBC's South Branch House, active from 1786-1794, but it was located close to the forks of the North and South Branches. Problems on the South Saskatchewan included poor fur returns and hostile European-Indian relations. Canoe construction and maintenance were also difficult on the Plains. In 1801 Fidler (1967:302) recorded his men having to travel 80 miles on horseback to the Cypress Hills to acquire pine pitch to seal the birch bark canoes. In a sense Fidler was fortunate, as the Cypress Hills are a rare source of pine on the Plains.

The Assiniboine, to which the Qu'Appelle is tributary, received early travel commentary. In his 1738-39 journey to Mandan territory, La Vérendrye (Smith and Wood 1980:44-45) recorded his impressions of the Assiniboine departing upstream in late September from the Forks (modern Winnipeg) to Fort La Reine (modern Portage la Prairie):

I found the river very low, no rain having fallen during the summer. Its course is from the west, very winding and very broad, and having a swift current with many shallows. . . . I decided to proceed by land following the prairies, with the men I did not need following in canoes, and found the prairie route to be shorter, since it cut across several bends in the stream and one was thus able to keep a straight course. On the evening of October 2, the Indians warned me that I

could ascend no farther, the river being too shallow to proceed in canoes. . . . Everyone agreed that we could go no farther, and that to do so would be running the risk of rendering the canoes useless upon returning, and in a place lacking materials for refitting. Here there was neither pitch nor roots for that purpose.

La Vérendrye's preference for travel by land along the Assiniboine was later echoed by NWC fur traders who habitually would send ". . . the canoes on to trace out the tedious sinuosities of the river, the 'gentlemen' walked or rode across the plains, hunting and killing meat for the next night's encampment of their brigade" (Morton 1939:432).

In the autumn of 1793, from September 6 to October 7, John Sutherland experienced a very difficult and slow journey up the Assiniboine from Fort Garry (modern Winnipeg) to just above the "Kapell" Forks. Tracking and wading were frequently necessary. For example, on September 11: ". . . the Canoes braking upon old sticks and stumps which is very numerous in this River, and they [the men] having scarcely any pitch or bark to mend them with, makes them stay behind the Boats this night" (Remarks and Observations on Traveling Inland, HBC archives B63/a/1). The party only made 10 to 16 miles a day, averaging about 12. On this same journey John Macdonnel's view (Gates 1933:110-15) was more relaxed, although he agreed on logistical details. On September 9, he recorded: "Ever since the forks we have walked on delightful plains . . . The River windes so that we can keep a head of the canoes and have time enough to hunt and fish." On September 16 they sent ahead for horses ". . . to lighten the canoes, the water being very low." On October 5: "The River continues so crooked all this time that in two hours we can travel as much as the canoes can do from sunrise to sunset."

In 1804 Daniel Harmon (1957:84-85) recorded that goods brought up the Assiniboine in October could not go further than Fort Espérance on the lower Qu'Appelle, some 35 kilometers upstream by canoe from the junction with the Assiniboine. From there they were taken further north to Fort Alexandria on the upper Assiniboine by horse. Even traveling downstream in spring on the upper Assiniboine could be difficult. In 1805 Harmon (1957:89) recorded having to build an extra boat to try and decrease the draught of the existing flat bottom boats and thereby improve the "poor progress."

Sutherland reported a similar problem on April 24, 1794:

Set out [from a fort just above the mouth of the Qu'Appelle] for Brandon House with 5 men in Company with Mr. Peter Grant and 12 Canadians in 3 large Canoes and two small ones. Mr. Grants Canoes

being too much loaded obliged him to trade [for] a skin Canoe, but if he had not taken us and our things he could have taken his own with ease, which shows that he is a very obliging gentleman. (Journal and Remarks at River Kapell 1793-94, HBC archives B63/a/1)

Canoeing The Qu'Appelle River

The first evidence of canoe traffic on the Qu'Appelle River is the founding of the NWC's Fort Espérance. According to John Macdonnel, this post was established in 1787 (Gates 1933:115), though Innis (1956) thinks 1784 more likely. Several forts were operated on the lower Qu'Appelle until 1819 as the NWC, the XY Company, and the HBC competed for furs in the tumultuous days before the final trading union of 1821. All of these forts were within 70 kilometers of the Assiniboine junction by water. In the last two years before union the NWC and the HBC operated forts near Beaver Creek on the Assiniboine, about 10 kilometers by canoe downstream from the junction. The complicated fort history is well detailed in Morton (1941). Peter Fidler's Reports and Journals give a good indication of the traders' view of the Qu'Appelle and of the difficulties of the fur trade there. There were problems with navigation, with wood supplies, with the Indians, and with an uncertain trade. In his 1819 "Report on Red River District" for the HBC, Fidler (HBC archives B22/e/1) noted the difficulties faced by the HBC's competition, the NWC:

Riviere Qu'Appelé is very Circuitous and narrow and only passable just when the ice breaks up, about the 25th April in Batteaux from the Trading Houses to its Mouth. . . .

[The NWC] have been alone there [at Fort Espérance] these 3 last Winters and Summers and the Indians have been so very troublesome and daring that this spring they are going totally to abandon it and erect new buildings at Beaver Creek within 200 Yards of our House, as not a man of them would agree to remain Inland at their old place. The Indians scalped last summer and otherwise wounded 3 young persons belonging to the NWC. Their Post at Qui'Appelle has been established near 40 years but the buildings have been removed 2 or 3 times to other spots in that Interval on acc^t of the fire wood being so far to fetch. . . .

The provision trade is very uncertain in some seasons they have brought from Qui Appele alone upwards of 900 bags of Pimigan of 85 each. And at other times their whole trade from the same place would not amount to 400 bags.

In his daily Journal Fidler indicated that horse stealing by the Indians was a problem for both the NWC and the HBC on the Qu'Appelle. In his entry for December 23, 1815, with reference to the HBC's fort on the Qu'Appelle he recorded "The Indians has there carried away 24 of our horses" (Brandon House Journal, HBC archives B22/a/19).

The extremely circuitous course of the Qu'Appelle made it ideal for ambushes. On May 12, 1816, Fidler recorded a letter from James Sutherland, dated May 9, which was smuggled out of Sutherland's captivity in the hands of NWC men on the river Qu'Appelle:

Riviere Qu'Appelle about 8 miles from Red [Assiniboine] River

Sir On Monday we [an HBC party led by John MacKay] started from the House [the HBC's "Fort Qu'Appelle" beside the NWC's Fort John] and owing to the shallowness of the river, did not get here till yesterday about 8 o'Clock A.M., when we were attacked by about 50 Canadians and half Breeds; This is the narrowest part of the River, the Batteaux touch both sides in passing, and is also a shallow rapid and a very crooked reach, which obliged our boats to be far apart and out of sight of each other. Two Boats that was ahead of mine was disarmed and the men made prisoners, before I knew anything of it; the others behind could render no assistance (Brandon House Journal, HBC archives B22/a/19)

John McKay (no relation to John MacKay) reported trouble with wood supply in his Journal entry of November 18, 1812:

Arrived at River QuAppelle . . . and after examining the Country hereabouts and finding it very inconvenient for building as it is one of the most destitute places for Wood of any description I ever saw (John McKay's Journal 1812-1813, HBC archives B63/a/2)

At one point (1810-1814) the NWC tried to operate a post much ". . . further up the qui appelle . . . at a beautiful small lake in order to be nearer

the Buffloe and Provision making Indians" (John MacDonald of Garth in Morton 1941:83). The remnants of this post have never been identified, but it must have been at Round Lake. MacDonald noted in the spring that "... the River is small and meandering very much, but there was high water from the flood or melting of snow" (Morton 1941:86).

Just as John MacKay's party was ambushed by competing fur traders on the lower Qu' Appelle as described previously in Sutherland's letter to Fidler, MacDonald's party was ambushed by Indians not far from Round Lake as they headed downstream with the spring flood (Morton 1941:86). The relative self-sufficiency of Plains tribes made them less tractable and more dangerous to the fur traders. In Eric Morse's (1968:45) words: "... the independence which the buffalo economy gave the Prairie Indians made this not always healthy country for fur traders to travel in, at least not very far from their forts." Innis (1956:235) states that "It was necessary to encourage the beaver hunters without offending the Plains Indians Failing in diplomacy they [the fur traders] were obliged to establish strong fortified posts along the edge of the buffalo country." Innis (1956: 236) also quotes Ogilvy and Thain, two NWC agents, who wrote in 1808 that the Plains Indians "... are the most independent, warlike and restless, of all the Indian tribes, and require to be managed with the greatest delicacy." Alexander Henry (1809: 312) commented in 1776 that "The wild ox [buffalo] alone supplies them with every thing which they are accustomed to want The amazing numbers of these animals prevent all fear of want; a fear which is incessantly present to the Indians of the north." Whisky, as HBC governor George Simpson wrote in 1822, was critical to the fur traders since the Plains Indians were "... so independent of European commodities that they would not take the trouble of hunting in order to provide themselves with any other article" (Nelson 1973:64). Unfortunately, trade in alcohol almost inevitably led to hostile relations sooner or later.

A report detailing the canoeability of the entire length of the Qu' Appelle system was not completed until Henry Hind's 1858 government exploring expedition. In late July of that year Hind (1860) traveled upstream from Fort Qu' Appelle to the source of the Qu' Appelle River. He noted that watermarks along Pasqua Lake indicated a spring lake level some eight feet higher than during his journey. Indians told him of the flood year of 1852 when the river covered the entire valley with water, flowing with a swift current, from its source to the Assiniboine.

Above Pasqua Lake Hind abandoned the canoes to the half-breeds to track upstream and himself walked on the topland along the valley edge. In

a parallel to La Vérendrye's experience on the Assiniboine Hind made much better time on foot than the canoes below "... the windings of the stream involving a course three times as long as a straight line up the valley" (Hind 1860:329). Subsequently Hind (1860:331) reported how the men with carts and horses had to await the slower canoes, and how an empty cart and horses were sent to collect a lagging canoe. Hind (1860:331-32) finally gave up on canoe travel entirely:

The tortuous character of the stream before we took the canoe out of the water, may be imagined from the fact that eleven hours constant, steady tracking enabled us to progress only five miles in a straight line through the valley, and not less than 200 courses and distances were recorded in the canoe. Some little time was lost in crossing from one side to the other in order to avoid the willow bushes, which only grew on the inside of a bend, rarely or never on the outside or longest curve. The breadth of the river where we left it was forty feet, and the speed of its current one mile and a quarter an hour. The fetid air from the marshes made most of the party feel unwell, and I therefore determined to carry the canoe in a cart on the immediate edge of the prairie, keeping the valley in constant view . . .

When Hind started his upstream explorations from Fort Qu'Appelle he designated his assistant, James Dickinson, responsible for downstream exploration to the mouth of the Qu'Appelle. Dickinson too was told of the variability of flow: it was said that the entire valley was often flooded to a depth of three feet (Hind 1860:371). Whilst paddling was "easy work" the narrow width and "strange contortions" of the river made steering difficult:

... the bends of the river are innumerable and very sharp, and the waters sweep round them with great velocity; oftentimes, but for the strong and dextrous arm of the steersman, the canoe would have been dashed against the bank; as it was he could not avoid sometimes getting entangled among the overhanging branches of the willows. (Hind 1860:371)

Otherwise there were only unpleasantries: three miles of Katepwa Lake were packed with a "dense decaying mass of confervæ" that slowed the canoe and smelled "most unpleasant" and there were the usual black flies and mosquitoes (Hind 1860:370 and 375).

Isaac Cowie described an attempt to revive boat usage on the Qu'Appelle at the very end of the fur trade era. In 1869 a Mr. McDonald had a fleet of flat-bottomed boats built at Fort Qu'Appelle out of poplar planking. In the absence of tar, spruce gum with buffalo grease was used to seal the seams. Cowie (1913:371-72) reported the outcome:

... the batteaux absorbed the water like sponges and leaked like sieves, requiring the crews to be constantly bailing instead of propelling the craft, when it was not compulsory to land the cargo and haul up the boat for repairs. When the "brigade" started the water was at a fairly high stage, and it made fair progress under lodge-leather sails, over the lakes, but the intervening streams were so crooked and offered so many impediments that it was a whole week before they reached the outlet of the second lake [Katepwa] below the fort. "Baffled but not beaten" by all these difficulties, by daily desertion of the men hired for the trip, by the discontent of the dispirited "regulars," and by the interminable sinuosities of the stream, the determination of Mr. McDonald finally forced the batteaux to Fort Ellice after a period of six weeks' continual driving. Unavoidably, under such circumstances, a great part of the cargo was spoilt; so this experimental voyage ended any further attempts in that direction.

Retracing the Qu'Appelle River Route by Canoe

I retraced the Qu'Appelle River route of Dickinson's exploratory party and Mr. McDonald's ill-fated experiment (Fig. 2) using a modern 15-foot fiberglass canoe. Compared to the fur traders' birch bark canoes the modern canoe was shorter and therefore more maneuverable, it had a shallower loaded draught (28 centimeters instead of 45), and its fabric was relatively invulnerable. The journey downstream from Katepwa Lake to St. Lazare took 12 days from July 14 to July 25, 1994. Route observations for each day's travel are summarized in Table 1. A strong current accounts for the greater distance traveled on day 7. The reports in Hind (1860) of three miles paddling per mile advanced by valley are shown to be somewhat exaggerated.

Currently the route traveled is ignored as a recreation option—except on the lakes (Fig. 3) I saw no craft other than my own during the journey. Yet although linear progress is slow, and there are a few unpleasant modern hazards (barbed wire and even electric fencing is sometimes strung across

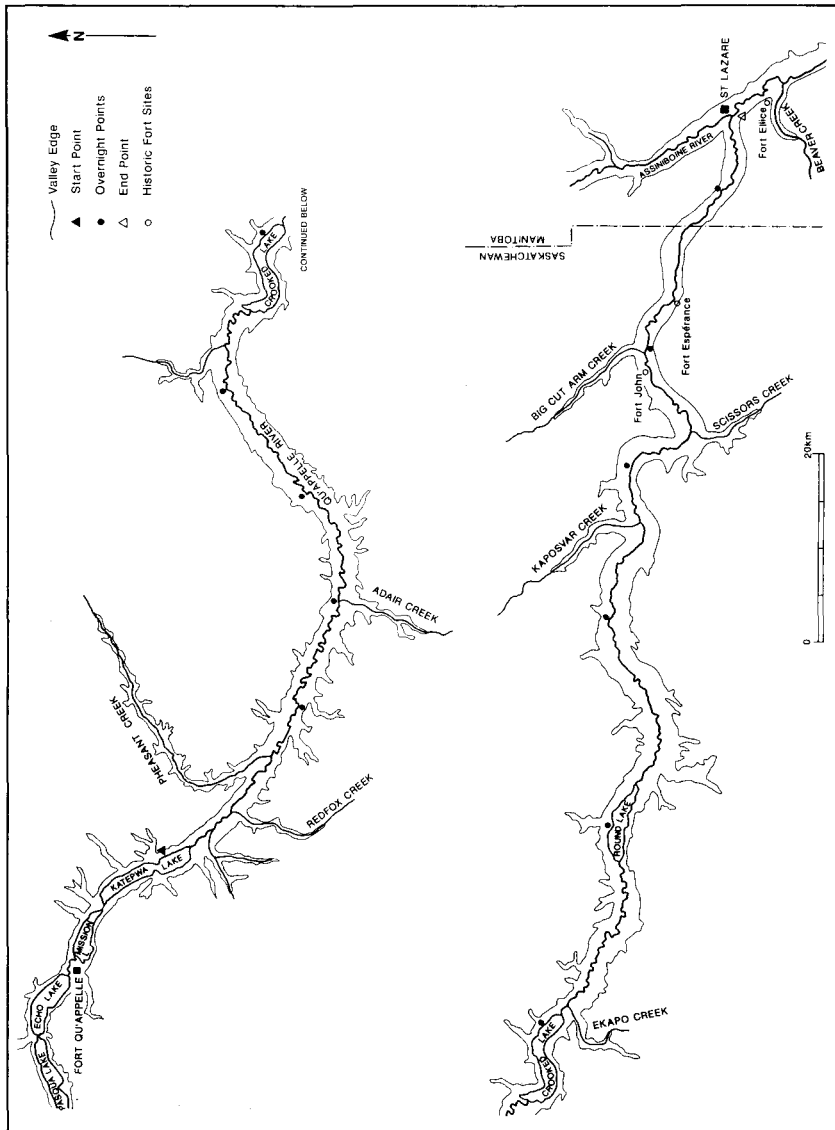


Figure 2. The Qu'Appelle valley route: Fort Qu'Appelle to St. Lazare.

TABLE 1
ROUTE OBSERVATIONS SUMMARY

July 14 to July 25	Travel Time* Start-End	Temp. (°C) Start-End	Weather Conditions	River Distance Traveled (kms)	Speed (kph)	Valley Distance Traveled (kms)
Day 1	6:30-14:30	12°-22°	clouding over, light thundershower	33.5	4.2	19.0
Day 2	5:30-14:30	16°-22°	sun then cloud, windy	39.5	4.4	14.5
Day 3	4:45-12:20	12°-22°	sunny, calm	32.0	4.2	12.0
Day 4	6:30-15:30	14°-23°	cloudy, humid	35.5	3.9	13.5
Day 5	4:45-13:00	19°-24°	windy	40.0	4.4	20.0
Day 6	stranded	-	high wind, constant rain	-	-	-
Day 7	5:00-14:00	17°-19°	overcast, light showers	51.0	5.6	23.5
Day 8	5:10-13:10	16°-24°	calm	37.0	4.6	24.0
Day 9	5:00-11:00	17°-21°	sun then cloud, showers	27.5	3.9	17.5
Day 10	4:30-11:00	10°-22°	mixed sun and cloud	32.5	4.3	20.0
Day 11	4:45-13:00	10°-23°	sunny, high wind	31.5	3.8	19.0
Day 12	6:35-10:20	5°-18°	sunny, windy	15.0	4.0	8.0

*All times are Central Standard. Sunrise about 5:40.

the river by enterprising ranchers), the passage is rewarding in terms of wildlife and scenery. Much of the disinterest in the route is likely cultural in origin: Plains canoeing lacks the romance of north woods canoeing.

Because 1994 was a relatively high water year I encountered no great problems with shallows. In most reaches the river water level had peaked about 60 centimeters higher in the spring. Consequently many of the beaver dams that sometimes block the river at times of low flow had been swept away. Some remained, creating smooth rapids, which the canoe swept over safely.

The two main difficulties were meanders and sweepers. Paddling meanders does not just mean extra kilometers paddled from point A to point B as the valley runs, it also implies harder work per river kilometer. The constant changes of direction and irregularities of current made it impossible to develop a steady rhythm. Although I portaged across meander loops twice to save a little time, there would have been no gain with a full cargo load. The route is also sometimes braided, so care had to be taken not to enter a dead end meander. River flow was usually perceptible, however.

Sweepers (tree branches projecting from the bankside into the river or caught in the riverbed; also known as "sawyers" in the United States) were a serious problem. Sometimes even whole trees emerged, still rooted and alive, from mid-channel. Contact with these, as in Dickinson's account, could not always be avoided. For a modern canoe the consequences are usually trivial but for a birch bark canoe it could easily result in a tear in the fabric and a stop for repairs.

There were no natural barriers along the route that necessitated portaging and the minor rapids encountered would all have been navigable upstream. However, when I again investigated several reaches in September I found that many were too shallow to have allowed a north canoe through. At this season, except on the easternmost reaches of the route, the bottom of a north canoe would have been in danger of tearing every few kilometers.

As the open valley acted as a funnel, wind was the single most important weather consideration. On several days with moderate to strong wind conditions I was surprised to face whitecaps on short straight river reaches. This problem was greatly accentuated on the two lake traverses. On Day 5 at Crooked Lake I made shore only with difficulty, taking on some water even while quartering the waves carefully. The next day the wind was stronger still and held me stranded the entire day.

Sun was also a factor. The Plains sun can be stronger than the woodland sun to the north or east and the reflection off the water can easily burn those



Figure 3. The view west up Crooked Lake from the northern edge of the Qu'Appelle valley. The lake is about two kilometers in width and entirely covers the valley floodplain. Photograph courtesy of Norman Henderson.

of northern European complexion. I felt the temperature difference clearly on Day 10 when a modest wall of heat hit me as the river course wound away from the wooded south slope and onto the open central valley.

Because of the heat during summer, canoeing in spring and fall was often easier. A very early start, launching like the *voyageurs* without breakfast, is also advantageous, as it helps to avoid sun, average higher wind speeds later in the day, and afternoon thundershowers. Nonetheless, heat would rarely be so severe as to incapacitate experienced canoeists, and fur traders readily paddled throughout daylight hours when necessary.

In terms of resources for the journey the river provided a rich bounty. Water, always a concern of Plains travelers, was silty but potable. The river water was generally of better quality than that of the intervening lakes where, as Dickinson (Hind 1860:370) reported, algae is a problem. Fish were plentiful (occasionally hitting the canoe) and easily caught. The quiet nature of smooth canoeing proved a great advantage: I saw Whitetail deer and



Figure 4. A typical view along the Qu'Appelle River. The current is sweeping towards the cutaway bank on the left, while willow leans into the river on the right. Just ahead, a sand bar lies hidden underwater near the right-hand bank. Photograph courtesy of Elaine Barrow.

beaver in abundance, especially downstream from Round Lake. Geese, and especially ducks, were also common—some of the younger birds could almost be caught by hand if so desired. The luxuriant vegetation along lower reaches of the Qu'Appelle seemed almost tropical.

Water travel also gave respite from mosquitoes, a serious Plains problem. When camping, it was important to seek out a fairly windy site to counter the mosquito threat. The canoe itself also provided a degree of physical shelter against the elements.

In one unanticipated respect I felt seriously disadvantaged in traveling by canoe. Even when the river banks were only 60 or 70 centimeters high, my vision was typically restricted to the width of the river and the distance forward to the next bend. (Fig. 4) The great vistas open to the Plains foot traveler or, better still, the Plains equestrian traveler, were denied me. In the canoe's woodland home, by contrast, a river or lakeshore vantage normally gives the broadest, not the smallest, viewscape feasible.

Discussion and Conclusions

There were significant advantages to Plains canoe travel, not least of which was the constant availability of drinking water. There was also the likelihood of food resources such as deer, waterfowl, and fish. Wood, that rare and valuable commodity on the Plains, was also often associated with rivers. Nevertheless, although Plains rivers could sometimes provide wood, an inadequate supply was possibly the single greatest constraint on canoe travel. Operating a birch bark canoe in a land without birch trees for bark, spruce trees for gum, or pine trees for pitch, brought logistical problems akin to modern attempts to operate high technology transport equipment in remote environments, far from replacement parts and technical expertise. The best canoes were in fact built far from the Plains at Grand Portage at the head of Lake Superior. Wood was also vital for building forts and trading posts and essential as fuel to survive the winters. We must also bear in mind that many parts of the Plains that now appear reasonably wooded (such as the lower Qu'Appelle) have developed this aspect only over the last century.

On the Plains rivers tend to run west to east, the same direction as the prevailing winds. This accentuates the one-way downstream travel bias which is characteristic of river travel. Prior to the arrival of the Europeans bull boats were used for one-way travel and to a degree the fur trade could usefully emulate this pattern. Much Plains trade revolved around provisioning the trading posts in wooded country, which meant that heavy pemmican loads could be sent out downstream, while the trade goods needed upstream on the Plains were lighter.

However, the basic nature of Plains rivers made canoeing difficult. The tendency of rivers to meander on a flat landscape greatly slowed progress. The sand bars common on the inside bend of meanders, and sometimes present in mid-stream as well, could badly damage a bark canoe. Compared to underwater rock hazards, underwater sand bars are often harder for the experienced canoeist to "read" and, while the informed canoeist can run many of the rock rapids typical of the wooded Pre-Cambrian Shield country safely and consistently, the sand bars of the Missouri or the South Saskatchewan shift notoriously.

Plains rivers are sometimes ephemeral and normally have highly seasonal flow. The seasonal rise and fall in river levels is a problem in itself, but it is compounded by the fact that the scale of change in the volume of river flow can vary greatly from one year to the next. In the northern Plains ice further restricts navigation.

Another problem was the lack of linkages between watersheds. Those Plains rivers that were to some degree navigable, such as the Missouri, are generally isolated from one another, such that portages from one great watershed to another were generally impossible. By contrast, to the north and east of the Plains, feasible portages existed from the Mississippi River to the Great Lakes, and from the Lakes to the arctic Athabaska River watershed via the rivers and lakes of the Hudson Bay drainage basin.

Uneasy relations with the Plains Indians, who generally remained much more independent of the traders than their woodland counterparts, was always a concern. When disinterest turned to hostility, as it sometimes did on the Plains, the nature of Plains rivers made river convoys particularly vulnerable to ambush. In fact the constricted view I experienced on the Qu'Appelle was perhaps the most interesting modern route observation.

Finally the question of the relative failure of the canoe on the Plains must be considered in light of other available options. In much of the wooded country there was simply no other travel option than by water. But on the Plains one could travel on foot or, far better, by horse. Perhaps the abandonment of the canoe is more positively understood in terms of the advantages offered by the Plains environment to equestrian travel. In speed, range, and all-season mobility the horse was clearly superior, and the field of view the Plains horseman enjoys is famous. Most importantly, while the primary and definitive Plains food source, the buffalo, was easily hunted from horseback, it is hard to imagine a technology less suited to the buffalo hunt than a canoe. The most lasting impression I have from reading the personal journal accounts of the woodland traders struggling with their canoes in the unfamiliar Plains environment is of being a spectator to people frustrated by inappropriate technology. These canoeists sometimes seemed as out of place on the Plains as a horseman might be in the muskeg of the northern forests.

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